



A.D. 1874, 31st DECEMBER. N^o 4491.

S P E C I F I C A T I O N

OF

ALEXANDER MELVILLE CLARK.

SURGICAL INSTRUMENTS (LITHOLYCITES).

L O N D O N :

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A.D. 1874, 31st DECEMBER. N° 4491.

Surgical Instruments (Litholycites).

LETTERS PATENT to Alexander Melville Clark, of 53, Chancery Lane, in the County of Middlesex, Patent Agent, for the Invention of "IMPROVEMENTS IN SURGICAL INSTRUMENTS KNOWN AS LITHOLYCITES."—A communication from abroad by Henry Whittington Bradford, of Randolph, in the County of Norfolk, and State of Massachusetts, United States of America.

Sealed the 19th February 1875, and dated the 31st December 1874.

COMPLETE SPECIFICATION filed by the said Alexander Melville Clark at the Office of the Commissioners of Patents, with his Petition and Declaration, on the 31st December 1874, pursuant to the 9th Section of the Patent Law Amendment Act, 1852.

5 **TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ALEXANDER MELVILLE CLARK, of 53, Chancery Lane, in the County of Middlesex, Patent Agent, send greeting.**

WHEREAS I am in possession of an Invention for "IMPROVEMENTS IN SURGICAL INSTRUMENTS KNOWN AS LITHOLYCITES," and have petitioned Her
10 Majesty to grant unto me, my executors, administrators, and assigns,

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Her Royal Letters Patent for the same, and have made solemn Declaration that it has been communicated to me from abroad by Henry Wittington Bradford, of Randolph, in the County of Norfolk, and State of Massachusetts, United States of America.

NOW KNOW YE, that I, the said Alexander Melville Clark, do hereby 5 declare that the following Complete Specification, under my hand and seal, fully describes and ascertains the nature of the said Invention, and in what manner the same is to be performed, in and by the following statement, reference being had to the accompanying Sheet of Drawings and to the letters and figures marked thereon (that is to say) :— 10

This Invention relates to litholycites of the kind in which are used a bag and jaws to be inserted in the bladder for scraping up and enclosing the stone, and a tube for introducing acid into the bladder for dissolving the stone, and removing it by flowing out through a tube. It consists essentially of a tube having curved jaws, to which a rubber bag is 15 attached to be inserted in the bladder, and opened and operated to scoop up the stone, then closed and locked to retain it, by contrivances extending from an exterior case along the tube to the jaws, so that the stone may be dissolved by nitric acid, conducted into the bag through a platinum tube introduced after the stone has been secured, and be 20 removed by flowing out through the principal tube.

The case before mentioned contains the mechanism for operating the contrivances for adjusting, closing, opening, and locking the jaws, all as herein-after particularly described and illustrated in the accompanying Drawings, in which Figure 1 is a side elevation of the improved 25 instrument; Figure 2 is a longitudinal section with the jaws and the bag open; Figure 3 is a section with the jaws closed; Figure 4 is a cross section on the line x, x , of Figure 2; Figure 5 is a section through the jaws and the bag on the line y, y , of Figure 2; Figure 6 is a detail of the apparatus for opening and closing the jaws, partly in section and 30 partly in side elevation; Figure 7 is a cross section on line z, z , of Figure 3. Similar letters of reference indicate corresponding parts.

A represents the jaws having the rubber bag B attached for scooping up the stone in the bladder, and enclosing it so as to apply a solvent-like nitric acid to it with safety. These jaws are jointed at C to rods D 35 extending along the tube E to its extremity from the wheels F and G,

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by which they are rotated forward and backward to open and close the bag by swinging the jaws from and towards each other.

The lock for fastening the jaws so as to close the bag for securing the stone and retaining the acid consists of the sliding bar H in one of the
5 jaws having hooks I, which engage in the slots J of the other jaw when the jaws come together, and the bar is moved lengthwise a little. It is moved for this purpose by the bar K, which is pushed forward by the screw-threaded sliding block L, to which it is connected, and the block is moved by the internally screw-threaded tube M, which is fitted on
10 the outer extremity of tube E so as to be revolved by its milled head N. A spring O pushes the locking bar back when the bar K is drawn back.

The jaws are pivoted to the rods D, so that they can take the position represented in Figure 1 when being introduced into the bladder, and be
15 swung down so that their free ends will be in the line of the tube or thereabout, the former position being the best for introducing them, and the latter being the best for operating the bag. To swing them down in this way a rod P is employed to push against the jaws at Q just over the pivots, the bar being extended along tube E to the pinion R, with
20 which it gears by a toothed portion S, and the pinion goes with a toothed bar T attached to the sliding block L, so that when said block moves forward to lock the jaws by bar K, bar P will be drawn back, and when bar K is drawn back to allow the jaws to open, the bar P will go forward to swing the jaws into and keep them in the position
25 for turning in the bladder to scoop up the stone, and close the bag around it. The wheels G and F are turned for rotating the rods D to open and close the jaws by the tube U, which fits over tube M, but within case V, and couples at W with the wheel G. The wheel G gears with the wheel F by an intermediate wheel X, so that the jaws are
30 moved together when the tube U is turned in one direction, and from each other when it is turned in the opposite direction.

The tube E is divided in a portion of its length by a partition y, which separates the upper part Z, to which the rubber bags is connected at a so as to receive the tube b, through which the acid is introduced
35 from the other part d, along which the rods D and bars P and K extend, and which is open from e to f to make room for the bars K, P, and T, and pinion R. A short tube g surrounds tube E to form bearings for

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the wheels F and G. The cap *h*, which incloses the inner end of the case, screws against the end of this tube, and the case and tubes U and M are connected so as not to shift endwise relatively to each other by the set screws *i* and *j*, and grooves *l* and *m*. The rubber bag is connected at its edges to the jaws by a platinum bar *n* fitting in a groove 5 in the jaw with the rubber under it, and secured by platinum screws, the platinum being used on account of its power to resist the action of the acid. The edges of the bag are made to project above the surface of the jaws and these bars, as at *p*, so as to form packing between the jaws when they are closed. The tube E will be made tight at the outer 10 end by cork *a*¹ in the end of a short tube *b*¹ attached to the end of E, and having branch *d*¹ for discharging the matters escaping from the bladder into a vessel for receiving them.

The tube U has a ratchet at *e*¹, with which is a pawl *f*¹ to hold it and keep the jaws closed. The pawl is kept in contact with the ratchet by 15 a spring *g*¹, and is pushed out to allow the tube to turn by the thumb bit *h*¹.

Having described the nature of the Invention and the manner of performing the same, I declare that what I claim as new and desire to secure by Letters Patent is,—

20

1st. The combination of jaws A curved as herein represented with the tube E and the rubber bag, substantially as specified.

2ndly. The combination of a platinum tube *b* with a rubber bag, the inserting tube and the opening and closing jaws in such manner that a continuous stream of acid may be made to flow into and out of the bag, 25 substantially as specified.

3rdly. The combination of rigid or inflexible jaws with the tube E and the rubber bag, substantially as specified.

4thly. The combination of the bar P, racks T, pinion R, and the block L with the jaws A and tube M for adjusting the jaws in line with 30 the tube.

5thly. The combination of bar K, sliding block L, and tube M with the tube E and jaw lock H, substantially as specified.

6thly. The fastening of the bag to the jaws by clamping it in grooves in them by the platinum bar *n* and screw.

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7thly. The tube E having the rubber bag B attached to it, the space *d* for the rods D and bars K, P, in combination with the jaws, and arranged substantially as specified.

8thly. The combination of the tube U, gear wheels F, G, and case V 5 with the rods D and tube E, substantially as specified.

In witness whereof, I, the said Alexander Melville Clark, have hereunto set my hand and seal, this Thirty-first day of December, in the year of our Lord One thousand eight hundred and seventy-four.

10

Witness,

HY. SWALES,

53, Chancery Lane,

London.

A. M. CLARK. (L.S.)

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FIG. 2.

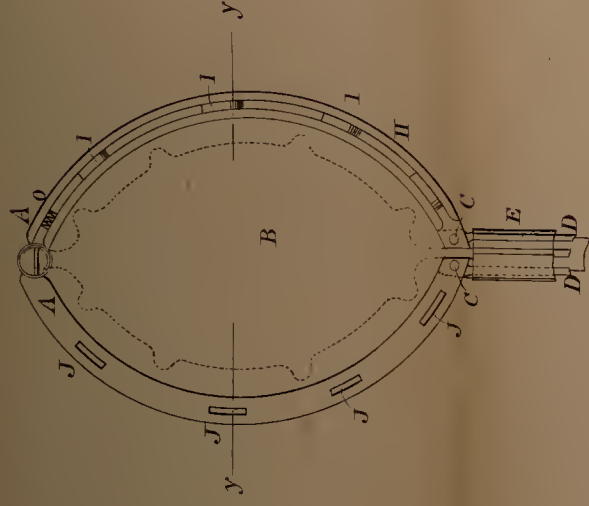


FIG. 1.

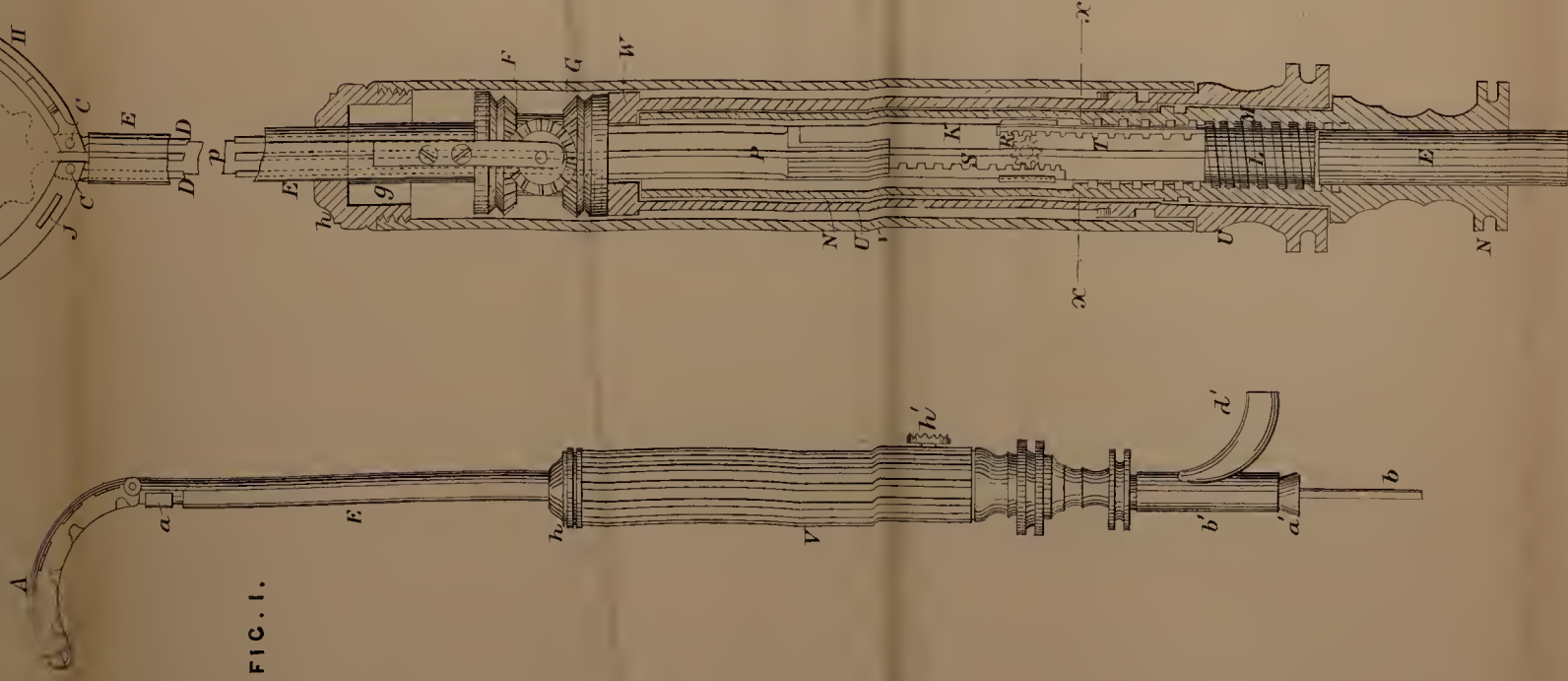


FIG. 7.

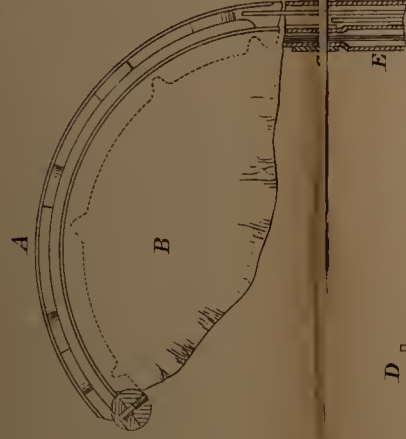


FIG. 3.

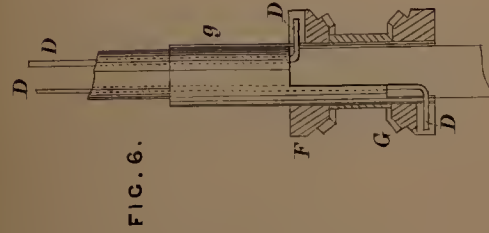


FIG. 6.

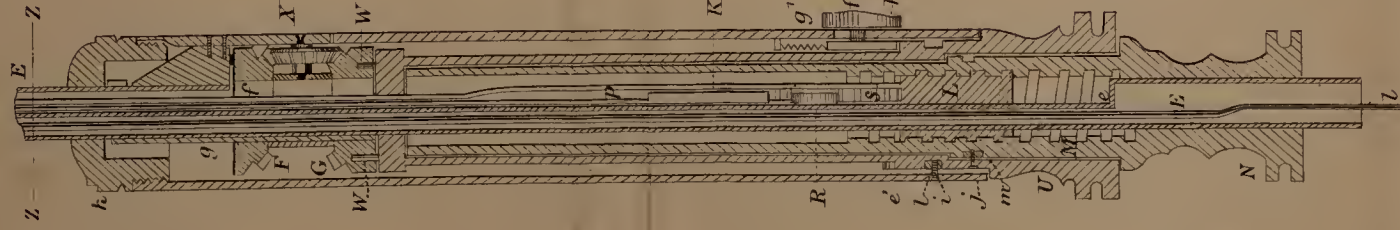


FIG. 5.



FIG. 4.

